

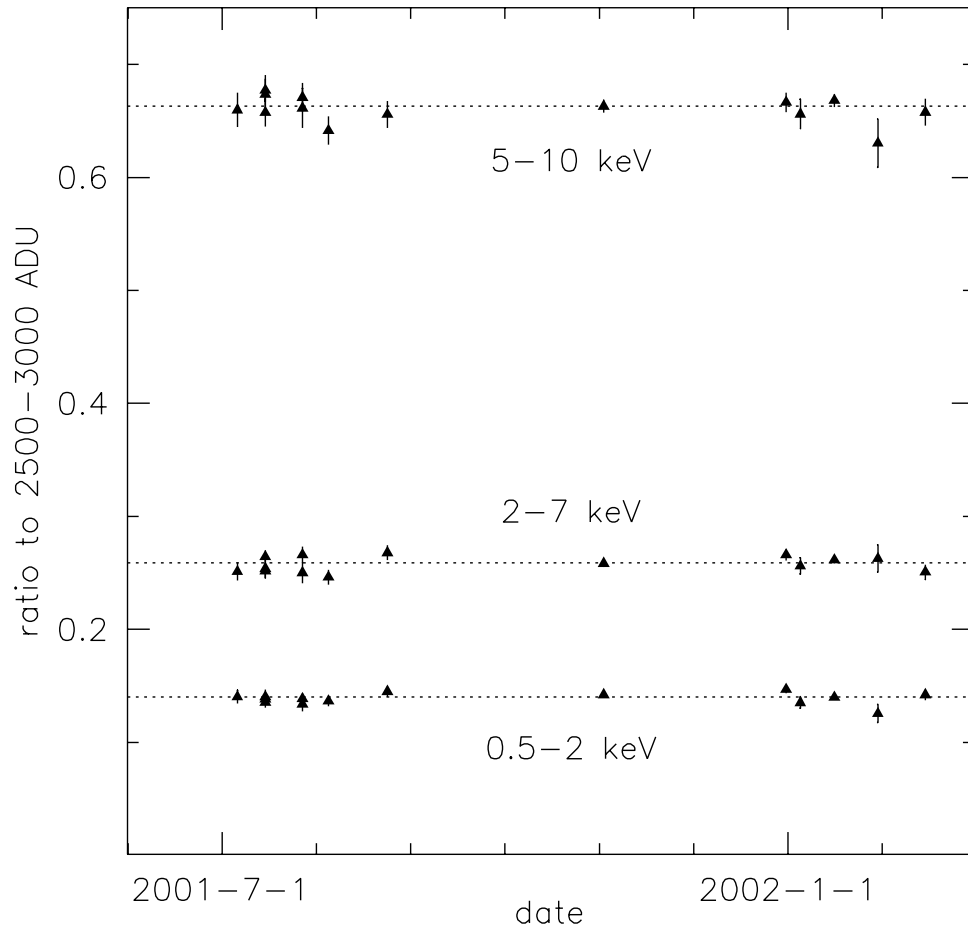
Propagation of ACIS background uncertainties

Maxim Markevitch

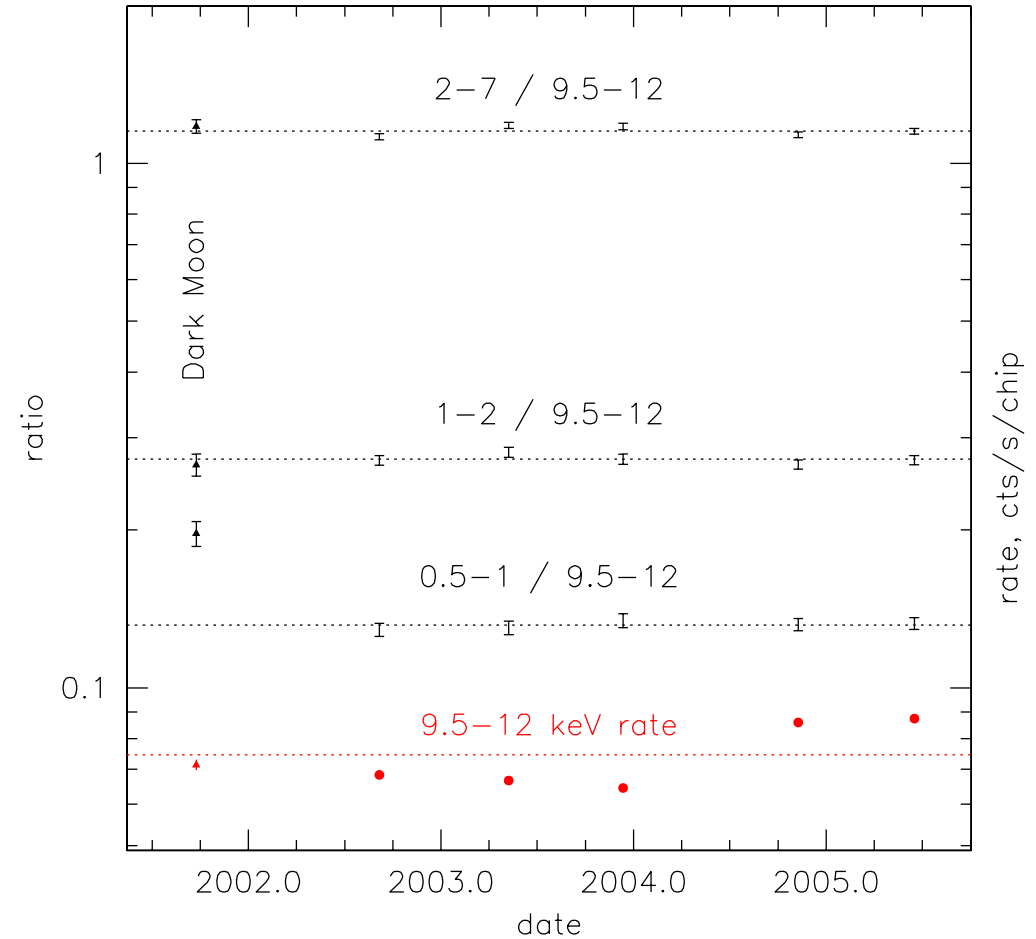
November 2005

Detector background variability

Histogram mode data, S3

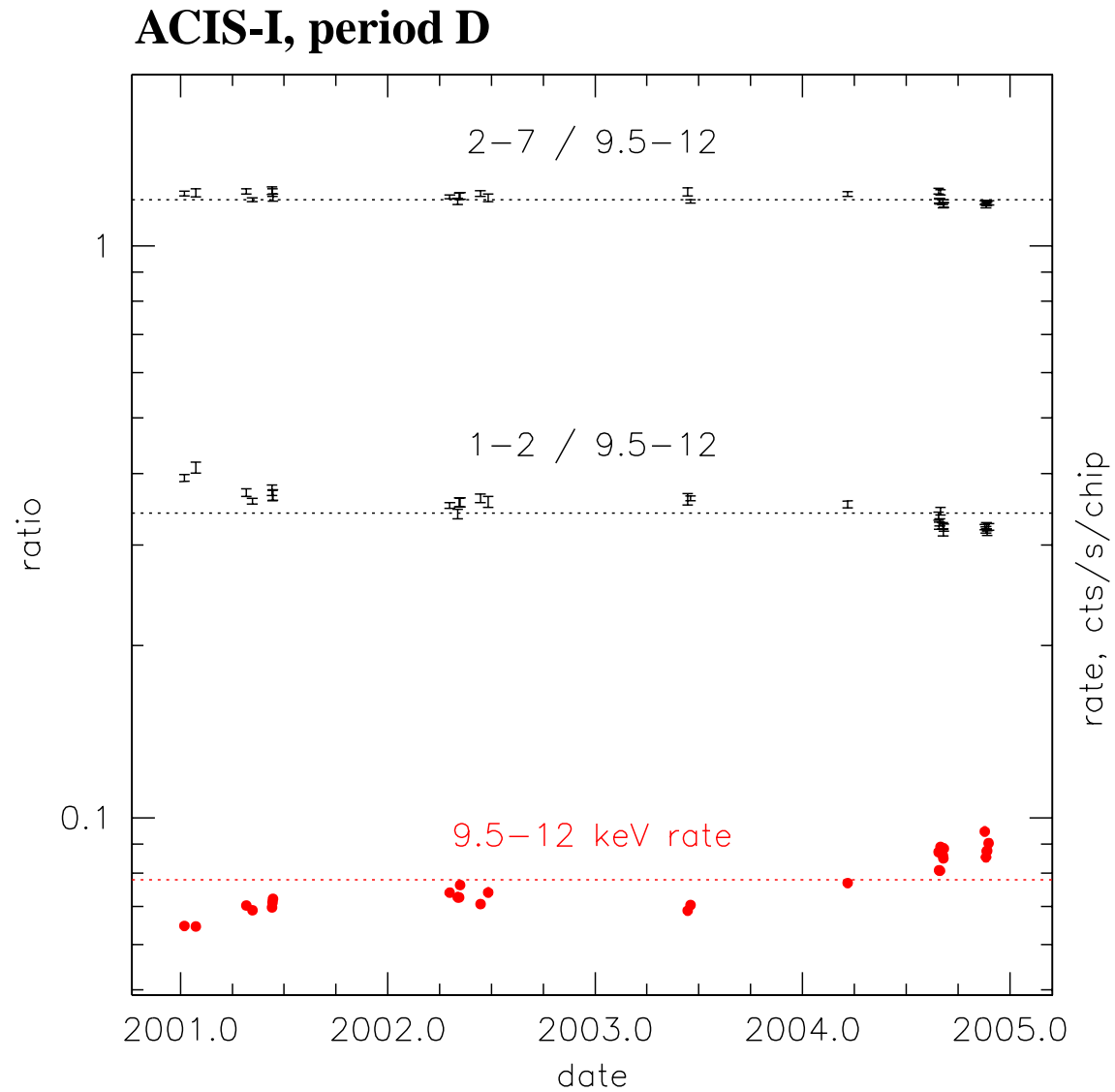


ACIS-stowed data, FI



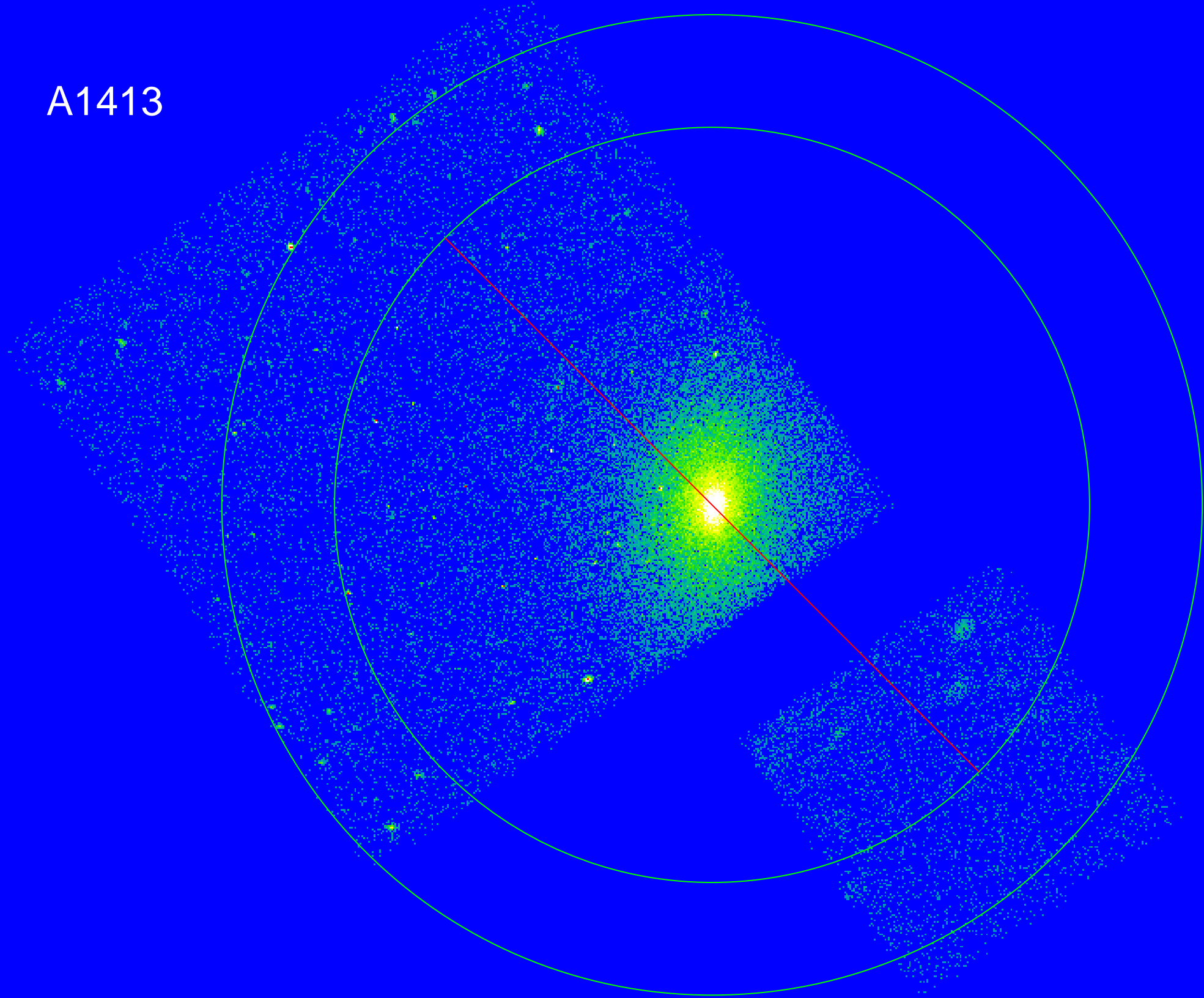
- Spectral shape of quiescent detector background is constant to $\pm 2\%$ (rms)

Blank-sky background variability

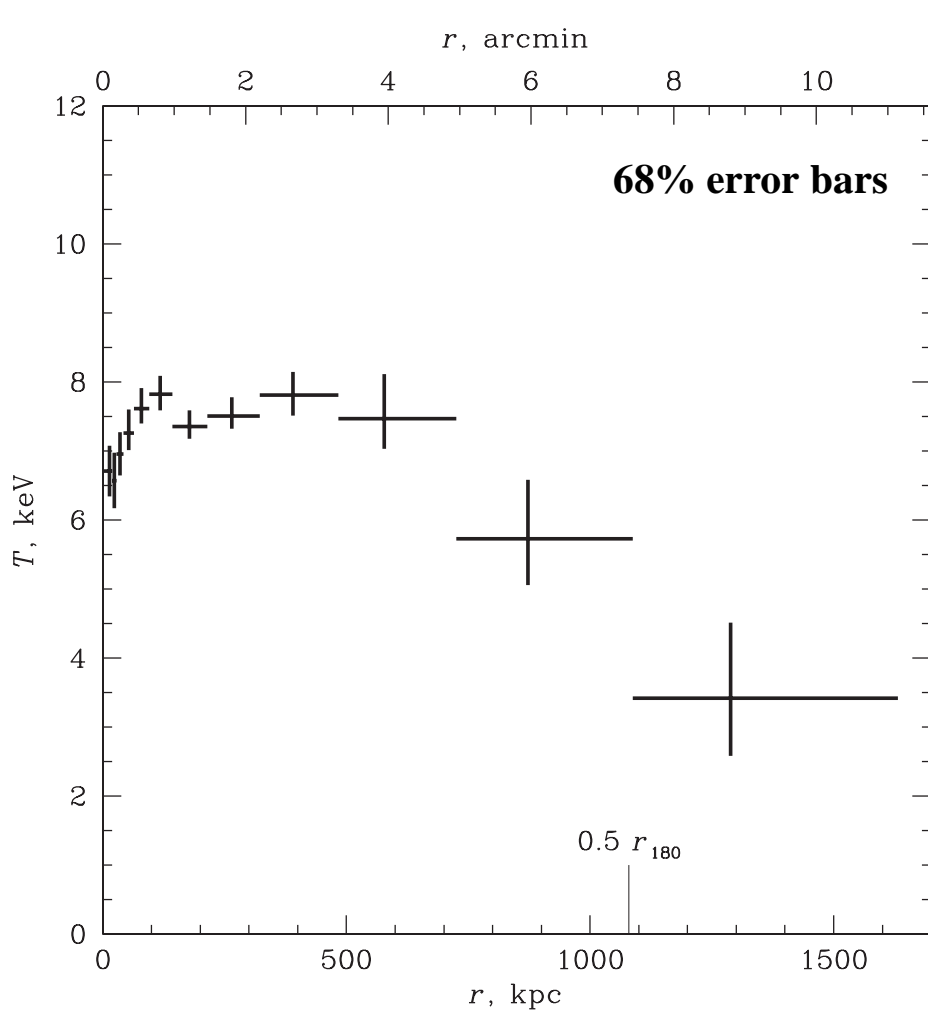


- Shape of quiescent blank-sky background at $E > 2$ keV is constant to $\pm 2\%$

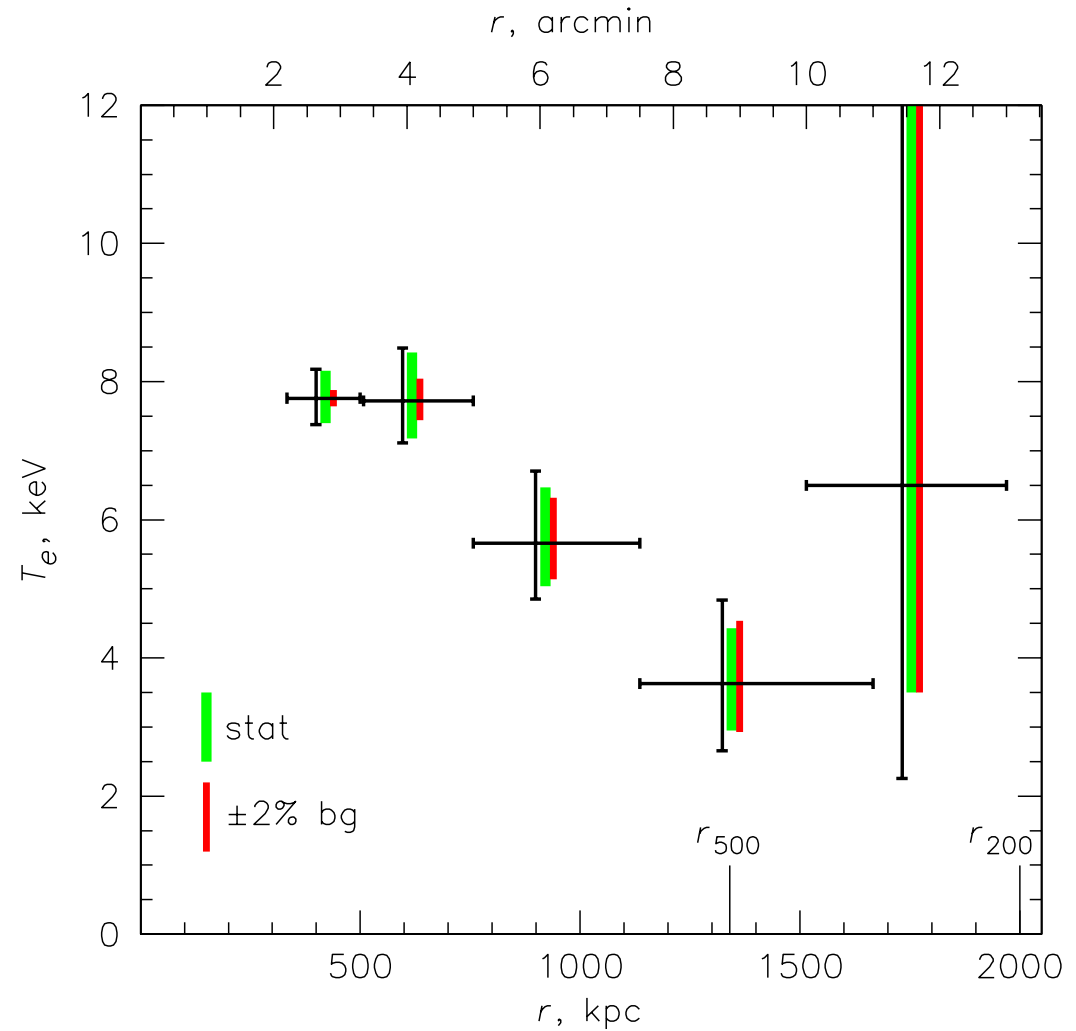
A1413



A1413 *Chandra* radial temperature profile



Vikhlinin et al. (2004)



- Vary background normalization by $\pm 2\%$, add in quadrature
- If any residual flares have to be modeled, uncertainty is $\gg 2\%$!

XMM background uncertainty

EPIC background is lower by $\times 2 - 3$ than ACIS (as a fraction of source brightness), but less predictable:

- Standard flare filtering (as in literature): 10 – 12% rms uncertainty for 2–7 keV
- Aggressive flare filtering (Nevalainen et al. 2005): 4 – 5%

